

Java Program 2

Concepts

- Objects
- Constructors
- “Getter” Methods
- Instance Methods
- toString()
- Nested loops
- Vector class
- Iterator

Description

Define a class called `Card`, each instance of which represents a playing card. The `Card` class should be in a package called `oa3302` (so that the “fully qualified name” is `oa3302.Card`). The class will have two `int` instance variables `suit` and `value` representing the associated properties of a given card. The `suit` instance variable represents, for example clubs, diamonds, hearts, or spades for a conventional deck of cards. The `value` instance variable represents the value of each card; for example, 2, 3,..., Queen, King, Ace. These variables should be set in the constructor and never changed. There should, however, be “getter” methods for the two instance variables. Finally, write a `toString()` method that returns the card's suit and value, as shown in the output below.

Write a main method in which you define a `Vector` called `deck` to contain the cards for a conventional 52-card deck. Don't forget that `Vector` belongs to the `java.util` package (So you should import `java.util.*`). Using nested `for` loops, instantiate 52 cards representing all the different cards in an ordinary deck and place them in the deck. To print the deck out, write a single `for` loop that uses an `Iterator` (obtained from `deck` by its `iterator()` method). For each card in the deck, print it out using `toString()` implicitly so that you do not have to cast the objects to `Card`. The output should look like this:

```
suit=0 value=0
suit=0 value=1
suit=0 value=2
suit=0 value=3
suit=0 value=4
suit=0 value=5
suit=0 value=6
suit=0 value=7
suit=0 value=8
suit=0 value=9
suit=0 value=10
suit=0 value=11
suit=0 value=12
suit=1 value=0
suit=1 value=1
suit=1 value=2
suit=1 value=3
suit=1 value=4
```

```
suit=1 value=5
suit=1 value=6
suit=1 value=7
suit=1 value=8
suit=1 value=9
suit=1 value=10
suit=1 value=11
suit=1 value=12
suit=2 value=0
suit=2 value=1
suit=2 value=2
suit=2 value=3
suit=2 value=4
suit=2 value=5
suit=2 value=6
suit=2 value=7
suit=2 value=8
suit=2 value=9
suit=2 value=10
suit=2 value=11
suit=2 value=12
suit=3 value=0
suit=3 value=1
suit=3 value=2
suit=3 value=3
suit=3 value=4
suit=3 value=5
suit=3 value=6
suit=3 value=7
suit=3 value=8
suit=3 value=9
suit=3 value=10
suit=3 value=11
suit=3 value=12
```

Deliverables

Turn in hard copies of your source code to your two classes (`Card` and `TestCard`) and the output from your program. Recall that you can redirect the output from a program using the `>` character, like this:

```
java oa3302.Card > Card.out
```

Now the file `TestCard.out` contains the output and can be printed.